The Relation between Tax Avoidance and Voluntary Disclosures of Taxation in United Kingdom

Abstract

Voluntary disclosure theory predicts a negative relation because the information costs could be higher when conducting tax avoidance. Reducing tax related disclosures could alleviate the concern about whether and how the company has tax avoidance. On the other hand, sociopolitical theories suggest a positive relation because firms with higher tax avoidance may want to reduce the social concern or legitimize their tax strategy by voluntarily disclosing certain tax information. This disclosure could further reduce the concerns when confronting the public pressure or criticism of tax avoidance. Therefore, this study examines the relation between tax avoidance and voluntary tax disclosure by conducting a content analysis. Using a sample of listed corporations in United Kingdom during 2010-2014, I find a positive association between corporate tax avoidance and voluntary tax disclosures, consistent with the predictions in socio-political theories. This implies that to alleviate the increase in the political and reputation costs induced by public concerns, companies voluntarily disclose more tax-related information to meet or alter societal expectations. Furthermore, because governments and shareholders have already relied on the tax-related information provided from annual reports or tax returns data, companies could voluntarily increase more disclosures of soft tax information to prevent regulatory scrutiny.

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Keywords: Tax avoidance; Voluntary disclosures of taxation; Socio-political theories

1. Introduction

Corporate tax avoidance has increasingly attracted attentions from the practitioners and tax authorities because of the changes in rules and in complexity of tax regulations worldwide. Earlier, companies tended to seek tax avoidance to reduce tax costs. Investors did not wish for acquiring more information as the tax savings could further increase their benefits and tax disclosures might trigger tax authorities' attention. However, since the late 2012, various sources suggest heightened public and media interests in tax (PwC 2014; Prime Minister's Office 2013; OECD 2013). For example, tax became one of the central themes of the UK's presidency of the G8 in 2013. Investors accordingly wish to acquire more tax information to know whether the company's tax planning is the same as they wish for. Still, most companies disclose tax information only in annual reports following mandatory requirements, such as the disclosures of uncertain tax position under FIN 48 in the U.S., as well as IAS 12 in Europe. Therefore, little is known about the relation between tax avoidance and voluntary tax disclosures.

Surprisingly, some companies in the United Kingdom disclose tax information in sustainability reports or corporate social responsibility (CSR) reports. Not only investors but also wider stakeholders there could obtain firms' tax information from CSR reports not just from financial reports. Evidence from Dyreng et al. (2015) shows that public pressure from ActionAid International in 2011 affects tax avoidance, suggesting increasing attention on firms' tax information. Different from their focuses on tax behavior, this study focuses on voluntary tax disclosures. The tax disclosure issue is not just a simple question in accounting or legislation, but the concern of wider stakeholders, including customers, suppliers, and Civil Society Organizations, (CSOs) (PwC 2015). More and more stakeholders hope to know more about firms' tax information such as whether and to what extent firms pay fair taxes. Furthermore, CSR reports are still voluntary disclosures in the UK, different from the mandatory nature of financial reports, in which firms have relatively little discretions. Accordingly, this unique setting provides us with an opportunity to explore these rarely investigated tax disclosures, examining the relation between tax avoidance and voluntary tax disclosures.

Specifically, I examine the competing hypotheses whether the relation between tax avoidance

and voluntary tax disclosures is consistent with voluntary disclosure theory or socio-political theory. The theories predict opposite relations between performance and voluntary disclosures, or here tax avoidance and voluntary disclosures. Voluntary disclosure theory states that firms with better performance have more voluntary disclosures (Dye, 1985; Verrecchia, 1983). The rationale is that superior performers will convey their types by voluntarily disclosing their performance based on objective performance indicators, which disclosures are difficult to mimic by inferior performers. These inferior firms will remain silent or disclose less of their performance. Applied to tax performers, voluntary disclosure theory suggests that firms with less tax avoidance have more voluntary disclosures to show their superior tax compliance. However, this equilibrium relies on the proprietary costs of the disclosures (Verrecchia, 1983) and uncertainty as to whether the disclosure can inform firms' performance (Dye, 1985). Tax compliance already means that the firms would need to pay fair tax that could lower shareholders' benefits. Because more disclosures could trigger more costs or uncertainty from public attention or tax audits, even good tax performers would not want the attention from the tax authorities.

On the other hand, socio-political theory predicts a negative relation between performance and voluntary disclosures. This theory actually includes three overlapping theories, political economy, legitimacy, and stakeholder theory (Patten 2002). These theories state that social and political pressures on corporations are the drivers to social disclosures. Facing more pressures, poor performers will increase discretionary disclosures to change stakeholders' views about their actual performance. Applied to tax performers, these theories suggest that a tax-avoiding firm may have more discretionary disclosures in legitimizing the tax strategy.

Overall, these competing theories create tensions about how tax avoidance affects voluntary tax disclosures. To examine the association, I use the sample of U.K. public firms from 2010 to 2014. Voluntary tax disclosures are from those that have tax disclosures in their sustainability reports or CSR reports. I further differentiate the tax information into hard information and soft information based on GRI guidelines (2015) and tax reports from PwC (2015). Hard information refers to the information objective, verifiable, and not easily mimicked, while soft information refers to the information subjective, easy to mimic, and not easily verifiable.

In terms of research design, I use Tobit regression, because most firms do not have discretionary tax disclosures in CSR reports. While U.K. firms are among the first that have tax disclosures in reports other than mandatory financial reports, only approximately 14% firm-years have the tax disclosures in their standalone CSR reports (120 firm-years out of 842 firm-years). Therefore, I use Tobit regression to reduce this left censored problem.

Furthermore, I use difference in difference design to reduce the concern of endogeneity. Especially the effective tax rates are decreasing in the U.K. over time (Ernst & Young 2010, 2011, 2012, 2013, 2014)[1]. I use fiscal year 2013 as a cutoff point to examine whether and to what extent pre-attention versus post-attention on tax avoidance affect the U.K. firms voluntary tax disclosures. It is because tax avoidance became a central theme in the U.K since late 2012 (PwC 2014; Prime Minister's Office 2013). In early 2013, OECD issued the report of Base Erosion and Profit Shifting, and Confederation of British Industry introduced Transparency and Reporting Principles (Ernst Young 2013). Additionally, I create the treatment firms of tax avoidance based on whether their effective tax rates are not lower than their peers' average tax rate in 2010 and 2011 (before the attention since late 2012). Then I can test whether the treatment firms (tax-compliance firms) change their tax disclosures since 2013 compared with the control firms.

These results show that tax avoidance is positively associated with voluntary tax soft disclosures. These results suggest that firms with lower effective tax rates tend to disclose more to legitimize their tax strategies or tax avoidance. Rather than disclosing more hard information, disclosing more soft information could reduce the attention from the tax authorities, and thus reduce social reputation costs of not paying fair taxes. In the additional test, using propensity score matching and difference in difference methods, I find stronger inferences that tax-avoiding firms have more tax disclosures after 2013 compared with matched control firms before 2013, no matter which type of the disclosures are. Additionally, overall tax disclosures are increasing since 2013. I further find that for firms with better CSR performance, the positive impact of tax avoidance is smaller on tax disclosures, including hard and soft disclosures.

In summary, this paper contributes to the existing literature by using the unique setting of voluntary tax disclosures, designing the disclosure indicators based on hard and soft information,

and using the difference-in-difference method to examine the impact of tax avoidance on voluntary tax disclosures. Existing literature examines tax disclosures in financial statements and the disclosures are still unclear (e.g., Blouin et al. 2007). Then some firms disclose more tax information in their CSR reports, but why they do so is still unknown. Additionally, most tax disclosures in financial statements are mandatory and thus less discretionary. Using voluntary tax disclosures in CSR reports or similar disclosures on firms' web sites allow us to examine the theories of discretionary disclosures and socio-politics. Further differentiating information into soft and hard would even enhance the reliability of inferences of my findings.

2. Literature Review and Hypothesis Development

2.1 Literature Review

The existing literature indicates that the purpose of corporate voluntary disclosures is to reduce information asymmetry, agency costs, or threatened social legitimacy. I develop the hypotheses of voluntary tax disclosures based on the three reasons above and two theories, voluntary disclosure theory and socio-political theory.

Information asymmetry and agency costs, these two reasons can explain the prediction based on voluntary disclosure theory that good performers have more voluntary disclosures. Good performers can signal their types and further reduce the information asymmetry between them and investors by disclosing more (Bushman et al. 2004; Healy and Palepu 2001). Disclosing more to reduce information asymmetry could even increase firms' liquidity (Bloomfield and Wilks 2000;) and reduce firms' cost of capital (Francis et al. 2008; Dhaliwal et al. 2011). Additionally, Healy et al (1999) indicate that voluntary disclosures could reduce the errors embedded in the wrong expectations and revise investors' expected firm value. In terms of agency problems, good mangers disclose more to reduce the agency costs as well (Hossain et al. 1995). However, the ability to reduce this information asymmetry or agency costs is based on the assumption that the voluntary disclosure can transmit reliable information to the uninformed ones. Otherwise, the information asymmetry or agency costs still exist given the disclosures.

On the other hand, social legitimacy can explain the predictions based on socio-political

theory that poor performers would increase their voluntary disclosures to reduce the threatened social legitimacy. Prior literature has discussed and defined social legitimacy of a firm as desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions given its activities (Dowling and Pfeffer 1975; Suchman 1995). When a firm's culture is different from such social values, this firm's social legitimacy is threatened (Matthews 1993). If a firm treats its social legitimacy as a method to obtain operational resources, impairing social legitimacy could result in a loss of managers' jobs (Suchman 1995). Accordingly, firms with threatened social legitimacy are more likely to increase their disclosures to achieve the following purposes: (1) inform the stakeholders the changes in their performance; (2) change perceptions of their performance; (3) reduce public concerns by stressing other accomplishments; and (4) excuse their behavior and change public expectations of their performance. For example, in environmental studies, socio-political theories predict a negative correlation between firms' environmental performance and their discretionary environmental disclosures (Patten 2000, 2002). In summary, socio-political theory suggests the negative relation between performance and voluntary disclosures, including the three sub-theories, political economy theory, legitimacy theory, and stakeholder theory (Gray et al. 1995, 1996).

If applying these general theories to tax, how would the theories predict the relation between tax avoidance and voluntary disclosures? Tax avoidance is broadly defined as the deduction of explicit taxes (Hanlon and Heitzman 2010). Following the call from Shackelford and Shevlin (2001), most literature focuses on the determinants of tax avoidance, but few studies examine the consequences of tax avoidance.

The studies related to the determinants mostly focus on the problems from separation of ownership and control, or agency problems (Slemrod 2004; Chen and Chu 2005; and Crocker and Slemrod 2005). The agency problems related to tax avoidance include managerial opportunism and resource diversion (Kim et al. 2011; Desai and Dharmapala 2009b). As an example, Chen et al. (2010) find the differences of non-conforming tax avoidance between family and non-family firms, suggesting that family firms probably pay more tax per book income than non-family firms. In terms of the incentives to tax avoidance, top executives seem to have a significant effect on tax avoidance using both GAAP and cash effective tax rates (Drying et al., 2010).

Most studies focusing on the consequences examine the capital market effects of tax avoidance (Desai and Dharmapala 2009a; Frischmann et al. 2008; Hanlon and Slemrod 2009; Kim et al. 2011). For example, Desai and Dharmapala (2009a) find that firms with high institutional ownership have a stronger positive association between tax avoidance and market-to-book, suggesting that the value of corporate tax avoidance depends on the monitoring power of investors, consistent with governance differences explaining cross-sectional variation in the consequences of tax avoidance. Furthermore, Kim et al. (2011) indicate that tax aggressiveness is positively associated with stock crash, suggesting that resource diversion from tax avoidance result in the drop of stock price. However, from the view of debt holders, prior research finds that tax savings from tax avoidance lower cost of debt capital (Graham and Tucker 2006; Lim 2010).

Still, tax avoidance has its implicit costs of being audited more or attracting more attention from the tax authorities (Kim et al. 2011), as well as explicit tax costs of penalties of interests required by the tax authorities (Crocker and Slemrod 2005). The public also considers it unfair if a firm does not pay its fair taxes or try to lower down the tax aggressively (Freeman 2003). This tax unfairness could result in the concerns from the stakeholders, damages in the firms' reputation, or even the society loss (Slemrod 2004; Williams 2007). In other words, the public could view strategies of tax avoidance as a violation of social legitimacy (Christensen and Murphy 2004; Landolf and Symons 2008; Lanis and Richardson 2012). To reduce such threatened social legitimacy, firms could change its tax disclosures. Existing evidence shows that firms would increase the volume of tax disclosures in 10-K but reduce the transparency (Balakrishnan et al. 2011). However, it is an empirical question how tax avoidance affects voluntary tax disclosures.

Following the view socio-political theory and voluntary disclosure, I develop the following alternative hypothesis 1:

H1：Tax avoidance is associated with voluntary tax disclosures.

Following the prediction of socio-political theory, firms with tax avoidance could increase the soft disclosures in CSR reports. This type of disclosure is more general and thus would have

no harm even drawing attention from the tax authorities. Additionally, through this self-serving disclosure, firms may convince their investors that their tax strategies are legitimate. The hypothesis 2a shows:

H2a：Tax avoidance is positively associated with voluntary disclosures of tax soft information.

In contrast to soft disclosures, hard disclosures contain more objective and specific tax information, not easily mimicked as well (Yan et al. 2016). Firms disclosing them would probably have less fear of drawing attentions from the tax authorities, suggesting that the firms pay fair taxes. Therefore, I have the following hypothesis 2b:

H2b：Tax avoidance is negatively associated with voluntary disclosures of tax hard information.

3. Research Design

3.1 Tax Disclosure Indicator

This key issue to this research design is to develop an indicator measuring different levels of voluntary tax disclosures. No prior tax research develops such measure yet because few companies disclose tax information voluntarily until recently. Therefore, I develop the tax disclosure indicators based on GRI Guidelines (Global Reporting Initiatives 2015) and Tax Transparency Framework by PwC (Packman, 2013, 2014, 2015).

Specifically, I employ a content analysis that assists us in developing a score for tax disclosure levels. By transforming textual data to quantitative data, I could further analyze the association between the voluntary tax disclosures and tax avoidance. The analysis of the tax disclosure is based on which information it relates to: soft information or hard information. Following the definition specified in Clarkson et al. (2008), soft information is subjective, easy to mimic, and not easily

verifiable; hard information is objective, verifiable, and not easily mimicked.

The reason for this distinction is that voluntary disclosures lack relatively strict verification compared to mandatory disclosures. Inferences on the voluntary disclosure theories (e.g., Verrocchio, 1983; Dye, 1985) require more focus on measures of hard information to verify the claims whether to be committed to tax contribution fairly to the society. However, Clarkson et al. (2008) indicate that examining socio-political theories requires using soft information as well. Therefore, I design indicators and dichotomize them into disclosures of hard versus soft information to help us identify which theories (voluntary disclosure theories and socio-political theories) apply to these tax disclosures in the CSR reports.

To obtain discretionary disclosures, I use the tax disclosures in the standalone sustainability or CSR reports from GRI Sustainability Disclosure Database and the sustainability section of some U.K firms' websites. Because CSR reports and tax disclosures in CSR reports are both voluntary, the data source could provide us with more reliable inferences in further analyses.

The tax disclosures include six sections, as shown in Table 1. I develop these categories in hard information items and soft information items based on Clarkson et al. (2008) and GRI reporting guidelines, as well as the scoring system based on Tax Transparency Framework by PwC (Packman, 2013, 2014, 2015). The disclosures include five categories, A1-A5. Categories A1, A2, and A3-1 show the measures of hard information disclosures; Categories A3-2, A4, and A5 demonstrate the measures of soft information disclosures. The Cronbach alpha coefficient (Cronbach, 1951) is 0.9254, which indicates very high internal reliability for the scale.

3.1.1 Hard Information Disclosures

Category A1 contains three indicators for tax governance structure and management systems, including attributions of tax responsibility, tax committees, and stakeholder involvements. For example, because SABMiller has set up a tax committee, then I give a score to that item[2]. A2 emphasizes on firms' credibility of tax compliance including 7 indicators. These are independent verification, participation in tax related organization, relationships with tax authorities, reference to GRI guidelines, voluntary endorsement of tax framework or initiatives, professional advisory,

and award. As an example, I give a score if a firm discloses that endorses tax principles, statements, policies, or proposed legislation from tax authorities, such as the arm's length principles and the Base Erosion and Profit Shifting project (BEPS)[3].

A3 focuses on tax spending. Because some firms disclose the spending in details but some do not, I separate this category into A3-1 in hard information and A3-2 in soft information. A3-1 focuses on the detailed statement of tax spending, which includes tax distribution by location and categories, subsidiaries in tax havens, and tax reconciliation tables. Because these indicators include detailed information, such as specific amounts and tax distributions, the tax contributions can tell stakeholders whether the firm contributes fair taxes to the society. Disclosing the information in the above categories can provide stakeholders with critical information to assess the firm's long-term tax performance and commitments.

3.1.2 Soft Information Disclosures

Category A3-2 focuses on general statement of tax spending, in which I cannot easily tell the fairness of tax contributions. Specifically, A3-2 includes General Statement of Contributions and general disclosures of a firm's claimed tax incentives. This accounts for the highest percentage of the disclosure items, 73.33% of total tax disclosure firm-year observations. Indicators in A4 measures whether a firm has tax strategy, tax risk management in general, basically all textual description. Different from For example, firms disclose broadly that they have a tax policy, that management is committed to follow the tax aim of OECD countries, etc. Such disclosures can be genuine given specific context, but they can also be deceiving given general descriptions without credibility or substantiation, and possibly can be mimicked.[4] Finally, A5 assesses the disclosures of a firm's tax profile given the existing tax rules. In summary, items coded here can represent true commitment, but firms with no real commitments to reduce aggressive tax avoidance can also imitate them.

3.2 Research Model

To examine whether tax avoidance is associated with voluntary tax disclosures, I employ the following Tobit regression[5] controlling for industry and year fixed effects:

$$VTD_{i,t} = \beta_0 + \beta_1 ETR_{i,t} + \beta_2 TOBINQ_{i,t} + \beta_3 VOLAT_{i,t} + \beta_4 ROA_{i,t}$$

$$+ \beta_5 LEV_{i,t} + \beta_6 SIZ\square_{i,t} + \beta_7 CSR_{i,t} + \beta_8 TAXREF_{i,t} + \varepsilon_{i,t} \qquad (1)$$

The dependent variable, a measure of voluntary tax disclosures (*VTD*), is a score based on a content analysis of tax disclosures in CSR reports from fiscal year f 2010 to 2014. To measure different information contents of voluntary tax disclosures, I further differentiate this total measure score into two alternative measures, disclosures of tax hard information (*HSCOR*) and tax soft information (*SSCOR*). Detailed measures of the dependent variables are described in Table 1.

Appendix states the measures and definition of the independent variables. The variable of interest is *ETR*, effective tax rate, a proxy usually used for tax avoidance or tax planning based on prior literature (e.g., Hanlon and Heitzman 2010). I define tax avoidance broadly as the measures in Dyreng et al. (2008, 2010) to encompass the reduction of the firm's taxes expenses relative to its pretax accounting income, GAAP effective tax rate (GAAP ETR). The tax expense includes deferred or accrued taxes, and thus this measure helps us capture the management in tax accruals as well.[6] Furthermore, I exclude the observations with absolute ETRs greater than one, because measurement errors would be higher if using the ETR greater than one (Stickney and McGee 1982). To control for the effect of negative effective tax rate, I have a dummy variable *TAXREF*, which is equal to one if firm *i* has tax benefits or rebates.

The control variables are those proxies for costs and benefits of voluntary disclosures. Costs of voluntary disclosures will decrease the desire to have voluntary disclosures, including firm size and proprietary costs. On the contrary, benefits of voluntary disclosures will increase the propensity to have voluntary disclosures, including firms' information asymmetry, performance, and leverage.

3.2.1 Benefits of Voluntary Disclosure

I use Tobin's Q (*TOBINQ*) and stock price volatility (*VOLAT*) to control for the impact of existing information asymmetry on voluntary disclosures. *TOBINQ* is equal to the summation of market value of equity, book value of preferred stock, and book value of debt divided by the book value of total assets. The rationale of using *TOBINQ* is that when firms have larger unbooked intangibles, namely larger market value relative to their own book values, investors may have less information than the firms' managers. Information asymmetry is larger in these firms. Through voluntary disclosures, firms can reduce their cost of capital (Healy and Palepu 2001). To reduce cost of capital from this information asymmetry, firms with larger Tobin'Q would voluntarily disclose more. However, Dhaliwal et al. (2011) indicates that firms in the growth stage would have fewer resources to voluntarily issue more reports or disclosures. Therefore, I do have expectations on the sign of this variable.

Additionally, following Lim (2001), I use *VOLAT* to proxy for information asymmetry. *VOLAT* is measured as standard deviation of the monthly stock return for fiscal year *t*. If investors know more about the firm, the expected value from investors will be more similar to the firm value, and the firm will have lower stock returns over the year. In other words, firms with higher stock volatilities, i.e., higher information asymmetry, would voluntarily disclose more to lower their cost of capital. Therefore, I expect the sign of *VOLAT* is positive.

For firm performance, I use return on assets (*ROA*) to proxy for financial performance and CSR scores (*CSR*) to proxy for sustainability performance. *ROA* is measured by earnings before extraordinary items in fiscal year *t* and tax divided by total assets at the beginning of fiscal year *t*. Prior study indicates that firms with superior earnings performance tend to disclose more to show that they belong to the "good" type of firms (Lang and Lundholm 1993). Therefore, I expect the sign of *ROA* is positive. Additionally, following Lys et al. (2015), I calculate *CSR* as the average of environment and social performance scores in fiscal year *t* from Thomson Reuters ASSET4 database.

The measure of leverage (*LEV*) is equal to a ratio of total liabilities to total assets at the end of fiscal year *t*. Research in disclosures has found that managers disclose more when they have more debts, because agency costs of debt are higher for those with more debt ratios in their capital

structure (e.g., Jensen and Meckling 1976). Also, because debt contracts increase, the demand for more monitoring increases as well, and trigger more demand of disclosures (Leftwich et al. 1981). Accordingly, I expect *LEV* is positively related with the propensity of voluntary disclosures.

3.2.2 Costs of Voluntary Disclosure

To proxy for size (*SIZE*), I use natural log of total equity at the end of fiscal year t. The rationale is that voluntary disclosures require large production costs, and that the larger the firm, the more the resources they have to bear the production costs of disclosures (Lang and Lundholm 1993; Clarkson et al. 2008). Thus, I expect that *SIZE* positively affect the propensity of voluntary disclosures.

In terms of proprietary costs, I include industry and year effects, because different industries suffer different criticism in their tax strategies, and because over the years the public put more and more attention to firms' taxes. Finally, I adjust standard errors for clustering by firm.

3.3 Sample Selection

The sample includes U.K. public firms over the fiscal years of 2010-2014. Beginning year is 2010 because more people start to pay attention to tax transparency (Ernst Young 2013). In September 2010, European Commission considered the area of Transparency and Accounting. More tax disclosures in the CSR reports started since 2010 as well. The ending year is 2014 because I collected the data in 2015, in which year not all firms completed their CSR reports yet.

Table 2 shows the sample selection criteria. For each firm-year observation, I collect tax disclosures in CSR reports from GRI Sustainability Disclosure Database, financial data and stock information from Compustat-Global, and CSR performance (including governance, environmental and social dimensions) from Thomson Reuters ASSET4. Consistent with prior research (e.g., Kubick et al. 2016), I remove firms in regulated industries, including those in the financial and utilities industries (those with two-digit SIC codes of 49 and 60-69). Additionally, I delete firms in mining industries (those with two-digit SIC codes of 10-14). Because the nature of this industry easily results in information asymmetry and corruption, U.K. government has required them to prepare for tax reports[7]. Then their tax reports are not voluntary, so I decide to exclude them out

of my sample. To mitigate the influence of outliers, I winsorize all continuous variables at the 1st and 99th percentiles. After further deleting the observations with missing values in necessary variables of the main test, these criteria leave us a sample of 842 firm-year observations.

In Table 3, Panels A and B demonstrate the sample distribution by year and industry. I have similar sample size in each year, but I have more firms in manufacturing and service industries.

4. Result

4.1 Descriptive Statistics

Table 4 demonstrates the distribution of tax disclosures and effective tax rates across fiscal years. While the whole sample includes 842 firm-years (205 firms), there are only 120 firm-years (21 firms) with such disclosures. Table 3 Panel A also demonstrates that tax disclosures are increasing over the years no matter which types of tax disclosures, hard or soft. Within the disclosure firms, the extent to which levels of disclosures vary a lot among firms. Specifically, none get full scores in tax disclosures, and out of total 26 scores, the average is just 5.15. Panel B shows that the effective tax rates are decreasing over the years, suggesting that more and more U.K. firms have tax avoidance.

Table 5 presents descriptive statistics and Pearson correlation of the variables in the main test. On average, the sample mean of effective tax rate (*ETR*) is 22.7%, approximately the same as statutory rate in the U.K, suggesting that on average, U.K. firms pay fair taxes to their government. However, the standard deviation of *ETR* is 13.7%, showing that tax compliance still varies among firms. In terms of tax disclosures, because most firms do not have such disclosures, the average is zero. The average *TOBINQ* is 1.791, greater than 1, and the standard deviation is 0.978, implying that the information asymmetry is quite different among firms. *SIZE* on average is 7.465, representing that the on average, firms' book value of equity is $1.746 billion. *CSR* scores have a broad range of 0.132 to 0.944 and relatively high variability of 0.226. The mean of *TAXREF* is 0.044, meaning that on average only 4% of sample has tax reliefs.

Panel B in Table 5 shows the correlation matrix for the variables defined in Appendix.

Specifically, the significant correlations between the disclosure scores (*TSCOR*, *HSCOR*, or *SSCOR*) and *SIZE*, *VOLAT*, and *CSR*, respectively show that larger firms, better CSR firms, and firms with higher stock volatility have more tax disclosures, including both types of disclosures (hard or soft).

4.2 Regression Result

Table 6 presents the empirical results. I find significantly negative association between *ETR* and *TSCOR,* supporting hypothesis 1. In addition, I find that *ETR* is negatively related to soft disclosures *SSCOR* supporting hypothesis 2a. The result suggests that tax avoidance is positively associated with soft disclosure, consistent with socio-political theory. Firms with tax avoidance may have threatened social legitimacy, and therefore increase its soft disclosure to reduce such concerns. If disclosing hard information, tax disclosures may trigger the attention from the tax authority. Accordingly, I could not find the relations between tax avoidance and the hard tax disclosures to support hypothesis 2b.

4.3 Additional Test

To control for bias selection, I use Heckman's (1979) two-stage regression analysis. To further reduce endogeneity, I employ propensity score matching and difference in difference methods to examine the relations between tax avoidance and tax disclosures. First, I create the treatment group of tax-avoiding firms, which have effective tax rates lower than its peer industry average in year 2010 or year 2011, respectively. Then I use the following probit regression to find propensity score matched control sample in the same year:

$$Tax\_Avoidance_{i,t} = \beta_0 + \beta_1 Governance_{i,t} + \beta_2 TOBINQ_{i,t} + \beta_3 VOLAT_{i,t} + \beta_4 ROA_{i,t}$$

$$+ \beta_5 LEV_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 CSR_{i,t} + \beta_8 TAXREF_{i,t} + \varepsilon_{i,t} \quad (2),$$

where *Tax_Avoidance* is equal to 1 if firm *i* has effective tax rates lower than its industry peer average effective tax rates in year 2010 or 2011, and 0 otherwise; *Governance* is the governance score from ASSET4 database; and all other variables are defined earlier in Appendix.

After I chose the controlled sample firm-years, I use the year of 2013 as a cutoff year, because tax avoidance became a central theme in the U.K since late 2012 (PwC 2014; Prime Minister's Office 2013). In early 2013, OECD issued the report of Base Erosion and Profit Shifting, and Confederation of British Industry introduced Transparency and Reporting Principles (Ernst Young 2013). Overall, this public pressure could further change tax-avoiding firms' disclosure strategy. Therefore, I design an additional test as the following regression using the propensity score matched sample with pre- and post-2013 data:

$$VTD_{i,t} = \beta_0 + \beta_1 DID + \beta_2 Tax\_Avoidance_{i,t} + \beta_3 Post2013 + \beta_4 ETR_{i,t}$$

$$+\beta_5 Governance_{i,t} + \beta_6 TOBINQ_{i,t} + \beta_7 VOLAT_{i,t} + \beta_8 ROA_{i,t}$$

$$+ \beta_9 LEV_{i,t} + \beta_{10} SIZE_{i,t} + \beta_{11} CSR_{i,t} + \beta_{12} TAXREF_{i,t} + \varepsilon_{i,t} \quad (3),$$

where *DID* is equal to *Tax_Avoidance* multiplied by *POST*2013; *Tax_Avoidance* is equal to 1 if firm *i* has effective tax rates lower than its industry peer average effective tax rates in year 2010 or 2011, and 0 otherwise; *Post*2013 is equal to 1 if the year is 2013 or 2014; and all other variables are defined earlier in Appendix.

Table 7 demonstrates the results that support hypotheses 1 and 2a, consistent with socio-political theory. This time, the result does not support hypothesis 2b, inconsistent with voluntary disclosure theory but consistent with socio-political theory. The results provide stronger inferences that on average, tax avoidance significantly affect the increase in tax disclosures since 2013 no matter which type of information, whole, hard, or soft.

I further test the association between cash effective tax rates and tax disclosure, and find similar inference as a difference in difference test shown in Panel B of Table 7. Then I investigate whether tax avoidance affects the propensity of tax disclosure, and the result in Panel C shows so. Because the tax disclosures are in CSR reports or sustainability section of firms' websites, to know more about the differences of tax disclosures among different CSR performers, I test whether the association is different for high CSR performers compared with others using the following regression:

$$VTD_{i,t} = \beta_0 + \beta_1 ETR_{i,t} + \beta_2 HIGHCSR_{i,t} + \beta_3 ETR_{i,t} * HIGHCSR_{i,t}$$
$$+ \beta_4 TOBINQ_{i,t} + \beta_5 VOLAT_{i,t} + \beta_6 ROA_{i,t} + \beta_7 LEV_{i,t}$$
$$+ \beta_8 SIZE_{i,t} + \beta_9 TAXREF_{i,t} + \varepsilon_{i,t} \quad (4),$$

where HIGHCSR is equal to one if firm i's CSR performance is higher than its industry average in year t and zero otherwise; and all other variables are defined in Appendix.

Panel D shows that on average, the association between ETR and tax disclosures is smaller for better CSR performers, no matter which type of disclosures. The results suggest that CSR performance mitigates the impact of tax avoidance on tax disclosures.

5. Conclusion

I examine the relation between tax avoidance and tax voluntary tax disclosures using the tax disclosures in U.K. firms' CSR reports. The setting and contents allow us to understand the disclosures in detail and exclude the impact of mandatory disclosure requirements. Additionally, prior literature has evidence on the relation between performance and voluntary disclosures related to environment only; evidence on voluntary disclosures based on financial reports could have bias because poor performers must discuss material financial information and then have greater exposures (Clarkson et al. 2008). Voluntary disclosure theory and socio-political theory also has competing hypotheses about the relation, and thus can create a tension that makes this topic worth exploring.

I find that tax avoidance is positively associated with voluntary tax disclosures, consistent with the prediction of socio-political theory. Additionally, I find that tax avoidance is significantly associated with voluntary disclosures of soft tax information, but do not find the association between tax avoidance and voluntary disclosures of hard tax information. These results suggest that firms with lower effective tax rates tend to disclose more general information to legitimize their tax strategies or tax avoidance. Rather than disclosing more hard information, disclosing more soft information could reduce the attention from the tax authorities, and thus reduce social reputation costs of not paying fair taxes.

I further find stronger inferences using propensity score matching and difference in difference methods. Specifically, I find that the positive impact of tax avoidance on tax disclosures is increasing since 2013, early that year in which OECD issued the report of Base Erosion and Profit Shifting and in which Confederation of British Industry introduced Transparency and Reporting Principles (Ernst Young 2013). U.K government starts to take this tax issue seriously late 2012, so I use 2013 as a tipping point. Tax-avoiding firms increase their tax disclosures since 2013 more than the propensity-matched firms. I further find that for firms with better CSR performance, the positive impact of tax avoidance is smaller on tax disclosures, including hard and soft disclosures.

Overall, the results suggest that GRI may need to provide more guidance in the disclosure of tax governance. As tax-avoiding firms are disclosing tax information more, proper guidance may be required to help the stakeholders understand the disclosures better.

Appendix - Variable Definition

Variable	Definition and Measure
Dependent Variable	
$VTD_{i,t}$	= A score of voluntary tax disclosures in the firm *i*'s CSR report for year *t*: I perform a content analysis using the disclosure index specified in Table 1. In total, I use three alternative disclosure scores measured based on whole (*TSCOR*), hard (*HSCOR*), and soft information (*SSCOR*), respectively, disclosed in firm *i*'s CSR report of the fiscal year *t*.
Main Variable	
$ETR_{i,t}$	= Effective tax rate, a proxy for tax avoidance: It is measured as the amount of tax expenses divided by pretax income in fiscal year *t*, ranging from -1 to 1.
Control Variable	
$CSR_{i,t}$	= A score of corporate social responsibility: It is measured by the average of environment and social performance scores in fiscal year *t* from *ASSET4*. ◦
$LEV_{i,t}$	= Leverage: It is measured as a ratio of total liabilities to total assets at the end of fiscal year *t*.
$ROA_{i,t}$	= Return on assets: It is measured by earnings before extraordinary items in fiscal year *t* and tax divided by total assets at the beginning of fiscal year *t*.
$SIZE_{i,t}$	= Size: Natural log of total equity at the end of fiscal year *t*.
$VOLAT_{i,t}$	= The volatility of stock price: It is measured as standard deviation of the monthly stock return for fiscal year *t*.
$TAXREF_{i,t}$	=1 if firm *i* has tax benefits or tax rebates; otherwise 0.
$TOBINQ_{i,t}$	= Tobin's Q: The sum of market value of equity, book value of preferred stock, and book value of debt divided by the book value of total assets.

References

Al-Tuwaijri, S. A., Christensen, T. E., & Hughes, K. E. (2004). The relations among environmental disclosure, environmental performance, and economic performance: A simultaneous equations approach. *Accounting, Organizations and Society*, 29(5-6), 447-471.

Balakrishnan, K., Blouin, J., & Guay, W. (2011). Does tax aggressiveness reduce financial reporting transparency? Working papers, Wharton School, University of Pennsylvania, Accounting Department.

Bloomfield, R. J., & Wilks, T. J. (2000). Disclosure effects in the laboratory: Liquidity, depth, and the cost of capital. *The Accounting Review*, 75(1), 13-41.

Bushman, R. M., Piotroski, J. D., & Smith, A. J. (2004). What determines corporate transparency? *Journal of Accounting Research*, 42(2), 207-252.

Chen, K. P., & Chu, C. (2005). Internal control vs. external manipulation: A model of corporate income tax evasion. *RAND Journal of Economics*, 36, 151–164.

Chen, S., Chen, X., Cheng, Q., & Shevlin, T. (2010). Are family firms more aggressive than non-family firms? *Journal of Financial Economics*, 95(1), 41–61.

Cho, C. H., & Patten, D. M. (2007). The role of environmental disclosures as tools of legitimacy: A research note. *Accounting, Organizations and Society*, 32(7-8), 639-647.

Chow, C. W., & Wong-Boren, A. (1987). Voluntary financial disclosure by Mexican corporations. *The Accounting Review*, 62(3), 533-541.

Choy, S. K., Lai, T., & Ng, T. (2014). Do Treasure Islands Create Firm Value? Working paper, Shanghai University of Finance and Economics.

Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis. *Accounting, Organizations and Society*, 33(4-5), 303-327.

Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2011). Does it really pay to be green? Determinants and consequences of proactive environmental strategies. *Journal of Accounting and Public Policy*, 30(2), 122-144.

Cormier, D., & Magnan, M. (2003). Environmental reporting management: A European perspective. *Journal of Accounting and Public Policy*, 22(1), 43-62.

Crocker, K., & Slemrod, J. (2005). Corporate tax evasion with agency costs. *Journal of Public Economics*, 89(9-10), 1593-1610.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika* 16 (3), 297-334.

Deegan, C., & Gordon, B. (1996). A study of the environmental disclosure policies of Australian corporations. *Accounting and Business Research*, 26(3), 187-199.

Desai, M., & Dharmapala, D. (2006). Corporate tax avoidance and high-powered incentives. *Journal of Financial Economics*, 79(1), 145-179.

Desai, M., & Dharmapala, D. (2009a). Corporate tax avoidance and firm value. *Review of Economics and Statistics*, 91(3), 537-546.

Desai, M., & Dharmapala, D. (2009b). Earnings management, corporate tax shelters, and book-tax alignment. *National Tax Journal*, 62(1), 169-186.

Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review*, 86(1), 59-100.

Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. *Pacific Sociological Review*, 18(1), 122-136.

Dye, R. A. (1985). Disclosure of non-proprietary information. *Journal of Accounting Research*, 23(1), 123–145.

Dyreng, S., Hoopes, J. L., & Wilde, J. H. (2015). Public pressure and corporate tax behavior. *Journal of Accounting Research*, 54(1), 147-186.

Dyreng, S., Hanlon, M., & Maydew, E. (2008). Long-run corporate tax avoidance. *The Accounting Review*, 83(1), 61-82.

Dyreng, S., Hanlon, M., & Maydew, E. (2010). The effects of executives on corporate tax avoidance. *The Accounting Review*, 85(4), 1163–1189.

Ernst & Young Tax Team. (2010, 2011, 2012, 2013, 2014). Worldwide corporate tax guide. Ernst & Young.

Ernst & Young Tax Team. (2013). Tax transparency-seizing the initiative. Ernst & Young.

Firth, M. (2002). Auditor-provided consultancy services and their associations with audit fees and audit opinions. *Journal of Business Finance and Accounting*, 29(5-6), 661–693.

Francis, J., Nanda, D., & Olsson, P. (2008). Voluntary disclosure, earnings quality, and cost of capital. *Journal of Accounting Research*, 46(1), 53-99.

Frank, M. M., Lynch, L. J., & Rego, S. O. (2009). Tax reporting aggressiveness and its relation to aggressive financial reporting. *The Accounting Review*, 84(2), 467-496.

Freedman, J. (2003). Tax and corporate responsibility. *Tax Journal*, 695(2), 1–4.

Frischmann, P., Shevlin, T., & Wilson, R. (2008). Economic consequences of increasing the conformity in accounting for uncertain tax benefits. *Journal of Accounting and Economics*, 46(2-3), 261–278.

Graham, J. R., Hanlon, M., Shevlin, T., & Shroff, N. (2014). Incentives for Tax Planning and Avoidance: Evidence from the Field. *The Accounting Review*, 89(3), 991–1023.

Graham, J., & Tucker, A. (2006). Tax shelters and corporate debt policy. *Journal of Financial Economics*, 81(3), 563-594.

Gray, R., Owen, D., & Adams, C. (1996). Accounting and accountability: Changes and challenges in corporate social and environmental reporting. London, UK: Prentice-Hall.

Gray, R., Kouhy, R., & Lavers, S. (1995). Corporate social and environmental reporting: A review of the literature and a longitudinal study of UK disclosure. *Accounting, Auditing and Accountability*, 8(2), 47-77.

Global Reporting Initiative. (2015). Sustainable Reporting Guidelines. Retrieved from www.globalreporting.org.

Guthrie, J. E., & Parker, L. D. (1989). Corporate social reporting: A rebuttal of legitimacy theory. *Accounting and Business Research*, 9(76), 343-352.

Hanlon, M. (2005). The persistence and pricing of earnings, accruals, and cash flows when firms have large book-tax differences. *The Accounting Review*, 80(1), 137-166.

Hanlon, M., & Slemrod, J. (2009). What does tax aggressiveness signal? Evidence from stock price reactions to news about tax shelter involvement. *Journal of Public Economics*, 93(1-2), 126-141.

Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, 50(2-3), 127-178.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31(1-3), 405-440.

Healy, P., Hutton, A., & Palepu, K. (1999). Stock performance and intermediation changes surrounding sustained increases in disclosure. *Contemporary Accounting Research*, 16(3), 485–520.

Hope, O. K., Ma, M. (Shuai), & Thomas, W. B. (2013). Tax avoidance and geographic earnings disclosure. *Journal of Accounting and Economics*, 56(2–3), 170–189.

Hossain, M., Tan, L. M., & Adams, M. (1994). Voluntary disclosure in an emerging capital market: Some empirical evidence from companies listed on the Kualar Lumpar Stock Exchange. *The International Journal of Accounting*, 29(4), 334–351.

Hossain, M., Perera, M. H. B., & Rahman, A. R. (1995). Voluntary disclosure in the annual reports of New Zealand companies. *Journal of International Financial Management and Accounting*, 6(1), 69-85.

Hybels, R. C. (1995). On legitimacy, legitimation, and organizations: A critical review and integrative theoretical model. *Academy of Management Journal*, Special Issue: Best Papers Proceedings, 241-245.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.

Judge, G. G., Hill, R.C., Griffiths, W. E., Lutkepohl, H., & Lee, T. C. (1988). *Introduction to the Theory and Practice of Econometrics*. New York, NY: Wiley.

Kim, J.-B., Li, Y., & Zhang, L. (2011). Corporate tax avoidance and stock price crash risk: Firm-level analysis. *Journal of Financial Economics*, 100(3), 639–662.

Kubick, T. R., Lynch, D., Mayberry, M. A., & Omer, T. C. (2016). The effects of regulatory scrutiny on tax avoidance: An examination of SEC comment letters. *The Accounting Review*, 91(6), 1751-1780.

Landolf, U., & Symons, S. (2008). Applying corporate responsibility to tax. *International Tax Review*, 19(Special Issue: Tax Management in Companies), 6-13.

Lang, M., & Lundholm, R. (1993). Cross-sectional determinants of analyst ratings of corporate disclosures. *Journal of Accounting Research*, 31(2), 246–247.

Lanis, R., & Richardson, G. (2012). Corporate social responsibility and tax aggressiveness: An empirical analysis. *Journal of Accounting and Public Policy*, 31(1), 86-108.

Lanis, R., & Richardson, G. (2013). Corporate social responsibility and tax aggressiveness: A test of legitimacy theory. *Accounting, Auditing and Accountability Journal*, 26(1), 75-100.

Leftwich, R. W., Watts, R. L., & Zimmerman, J. L. (1981). Voluntary corporate disclosure: The case of interim reporting. *Journal of Accounting Research*, 18(Supplement), 50–77.

Lim, T. (2001). Rationality and Analysts' Forecast Bias. *Journal of Finance*, LVI(1), 369-385.

Lim, Y. (2010). Tax avoidance, cost of debt and shareholder activism: Evidence from Korea. *Journal of Banking and Finance*, 35(2), 456-470.

Lindblom, C. (1994). The implication of organizational legitimacy for corporate social performance disclosure. *Paper presented at the Critical Perspectives on Accounting Conference*, New York.

Lys, T., Naughton, J., & Wang, C. (2015). Signaling through corporate accountability reporting. *Journal of Accounting and Economics*, 60 (1), 56–72.

Mathews, M. R. (1993). Socially responsible accounting. UK: Chapman and Hall.

Mills, L., (1998). Book-tax differences and Internal Revenue Service adjustments. *Journal of Accounting Research*, 36(2), 343–356.

OECD, (2013). A step change in tax transparency. *OECD Report For The G8 Summit*.

Packman, A. (2014). Tax transparency: What are the UK's biggest listed companies reporting? *PwC*, UK.

Packman, A. (2015). Bulding Public Trust Through Tax Reporting-Developing a Communication Plan for Tax. *PwC*, UK.

Patten, D. M. (1991). Exposure, legitimacy and social disclosure. *Journal of Accounting and Public Policy*, 10(4), 297-308.

Patten, D. M. (2000). Changing Superfund disclosure and its relation to the provision of other environmental information. *Advances in Environmental Accounting and Management*, 1, 101-121.

Patten, D. M. (2002a). The relation between environmental performance and environmental disclosure: A research note. *Accounting, Organizations and Society*, 27(8), 763-764.

Patten, D. M. (2002b). Media exposure, public policy pressure, and environmental disclosure: An examination of the impact of TRI data availability. *Accounting Forum*, 26(2), 152-171.

Phillips, J. (2003). Corporate tax-planning effectiveness: the role of compensation-based incentives. *The Accounting Review*, 78(3), 847-874.

Prime Minister's Office, Department for International Development, Foreign & 2013 UK G8 Presidency Report. (2013). *UK Presidency Report of G8 2013*.

Qiu, Y., Shaukat, A., & Tharyan, R. (2016). Environmental and social disclosures: Link with corporate financial performance. *The British Accounting Review*, 48(1), 102-116.

Rego, S., (2003). Tax avoidance activities of U.S. multinational corporations. *Contemporary Accounting Research*, 20(4), 805–833.

Russo, M. V., & Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal*, 40(3), 534-559.

Slemrod, J. (2004). The economics of corporate tax selfishness. *National Tax Journal*, 57(4), 877-899.

Stickney, C., & McGee, V. (1982). Effective corporate tax rates: the Effect of size, capital intensity, leverage, and other factors. *Journal of Accounting and Public Policy*, 1(2), 125-152.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Journal*, 20(3), 571-610.

Tobin, J. (1958). Estimation of Relationships for Limited Dependent Variables. *Econometrica*, 26(1), 24-36.

Verrecchia, R. (1983). Discretionary disclosure. *Journal of Accounting and Economics*, 5, 179-194.

Verrecchia, R. (2001). Essays on disclosure. *Journal of Accounting and Economics*, 32(1-3), 97-180.

Watson, A., Shrives, P., & Marston, C. (2002). Voluntary disclosure of accounting ratios in the UK. *The British Accounting Review*, 34(4), 289-313.

Williams, D. F. (2007). Developing the Concept of Tax Governance. KPMG, London, UK.

Table 1 Indicators of Voluntary Tax Disclosure in CSR Reports

Hard Information	Percentage of Firm-year Observations Disclosing This Item (%) N=842	Percentage of Firm-year Observations with Tax Disclosures Disclosing This Item (%) N=120
(A1) Governance Structure and Management Systems (Maximum Score: 3)	***1.78***	***12.50***
1. Attribution of Responsibility (0-1): The score is 1 if the CSR report has disclosures of corresponding positions for tax compliance or clear tax responsibility attribution; 0 otherwise.	1.54	10.83
2. **Governance-Tax Committee (0-1):** The score is 1 if the CSR report has disclosures of the setup of a tax committee; 0 otherwise.	0.59	4.17
3. **Stakeholders Involvement (0-1):** The score is 1 if the CSR report has disclosures of a tax strategy or tax policy that involves discussions among stakeholders; 0 otherwise.	0.24	1.67
(A2) Credibility of Tax Compliance (Maximum Score: 7)	***6.65***	***46.67***
1. **Independent Verification (0-1):** The score is 1 if the CSR report is verified by an independent third party, i.e., tax professionals or a CPA firm; 0 otherwise.	1.31	9.17
2. **Participation in Related Organizations (0-1):** The score is 1 if the CSR report discloses a participation of tax-related organizations or large-scale parliamentary debates that discuss how to improve tax practices; 0 otherwise.	1.54	10.83
3. **Relationships with Authorities (0-1):** The score is 1 if the CSR report states that the company has a cooperative relation with tax authorities, including the discussion of tax planning, strategies, risks, and significant transactions, as well as how to disclose tax information timely; 0 otherwise.	4.39	30.83
4. **Reference to GRI (0-1):** The score is 1 if the CSR report discloses tax information with a reference to how the company meets GRI sustainable reporting guidelines; 0 otherwise.	0.83	5.83

Table 1 (Continued)

Hard Information	Percentage of Firm-year Observations Disclosing This Item (%) N=842	Percentage of Firm-year Observations with Tax Disclosures Disclosing This Item (%) N=120
5. **Voluntary Endorsement of Framework or Initiatives (0-1):** The score is 1 if the CSR report states that the company endorses tax principles, statements, policies, or proposed legislation from tax authorities, such as the arm's length principles and the Base Erosion and Profit Shifting project (BEPS); 0 otherwise.	3.56	25.00
6. **Professional Advisory** (0-1): The score is 1 if the CSR report indicates that the company hires professional advisory or technical tax support; 0 otherwise.	1.07	7.50
7. **Award** (0-1): The score is 1 if the CSR report mentions that the company won an award related to its tax compliance or reporting; 0 otherwise.	0.59	4.17
(A3-1) Amounts or Distribution of Tax Spending (Maximum Score: 5)	***9.03***	***63.33***
1.Amounts of **Contributions (0-1):** The score is 1 if the CSR report discloses the amount of tax contributions to governments or the society; 0 otherwise.	8.79	61.67
2. **Distribution by Region** (0-1): The score is 1 if the CSR report discloses how and how much the company contributes its tax to which regions; 0 otherwise.	1.31	9.17
3. **Distribution by Category** (0-1): The score is 1 if the CSR report discloses how and how much the company contributes its tax to which categories or products; 0 otherwise.	2.61	18.33
4. **Tax Incentives-Details** (0-1): The score is 1 if the CSR report discloses which tax incentives the company applies for, which tax havens the subsidiaries are located in, and what the impacts are; 0 otherwise.	0.95	6.67
5. **Taxes in Financial Statements** (0-1): The score is 1 if the CSR report discloses taxes in the financial statements or in the reconciliation table; 0 otherwise.	1.78	12.50

Table 1 (Continued)

Soft Information	Percentage of Firm-year Observations Disclosing This Item (%) N=842	Percentage of Firm-year Observations with Tax Disclosures Disclosing This Item (%) N=120
(A3-2) General Statement of Tax Spending (Maximum Score: 2)	***10.45***	***73.33***
1. General Statement of Contributions (0-1): The score is 1 if the CSR report discloses that the company committed to comply the laws, complete tax requirements, or due consideration of tax to align with corporate and social responsibilities; 0 otherwise.	9.62	67.50
2. Tax incentives-General Statement of Utilization (0-1): The score is 1 if the CSR report has a general disclosures that the company claimed tax incentives to reduce tax costs or to maximize shareholders' benefits but not in details; 0 if no such a disclosure.	2.14	15.00
(A4) Tax Strategy (Maximum Score: 7)	***6.06***	***42.50***
1. Object (0-1): The score is 1 if the CSR report discloses the company's tax strategy or missions; 0 otherwise.	2.49	17.50
2. **Policy** (0-1): The score is 1 if the CSR report discloses the tax principles or policies that the company follow; 0 otherwise.	3.21	22.50
3. **Governance-General Statement** (0-1): The score is 1 if the CSR report discloses the company's tax governance; 0 otherwise.	2.49	17.50
4. **Governance-Review** (0-1): The score is 1 if the CSR report discloses that the company review its tax compliance or governance regularly; 0 otherwise.	2.14	15.00
5. **Governance-Risk Management** (0-1): The score is 1 if the CSR report discloses the company has the conduct or management of tax risk; 0 otherwise.	2.38	16.67
6. **Transparency-General Statement** (0-1): The score is 1 if the CSR report discloses that the company committed to be open and transparent about how it operates or comply tax laws; 0 otherwise.	5.58	39.17

Table 1 (Continued)

Soft Information	Percentage of Firm-year Observations Disclosing This Item (%) N=842	Percentage of Firm-year Observations with Tax Disclosures Disclosing This Item (%) N=120
7. **Training** (0-1): The score is 1 if the CSR report discloses that the company has employee training in tax principles; 0 otherwise.	0.71	5.00
(A5) Tax Profile (Maximum Score: 2)	***9.14***	***64.17***
1. **Compliance-Laws** (0-1): The score is 1 if the CSR report states a fully compliance with relevant tax regulations and required reporting; 0 otherwise.	4.51	31.67
2. **Tax Issues** (0-1): The score is 1 if the CSR report discloses that the company comply anti-avoidance tax rules; 0 otherwise.	7.01	49.17

Note: This table illustrates the observations with the tax disclosure indicators measuring two types of information, hard and soft information. Specifically, A1 (governance structures or management systems), A2 (credibility of tax compliance), and A3-1 (amounts or distribution of tax spending) belong to hard information; A3-2 (general statement of tax contributions), A4 (tax strategy), and A5 (tax profile) refer to soft information. In total, 120 firm-years have tax disclosures in the CSR reports. The third column shows the percentage of observations with such specific disclosure out of the total sample (842 firm-year observations). The fourth column shows the percentage of observations with such specific disclosure out of the total 120 firm-year with tax disclosures.

Table 2 Sample Selection

	Fiscal Year					
Sample Selection Criteria	2010	2011	2012	2013	2014	Total
Start：U.K public firms after excluding those in financial, utility and mining industries	182	198	201	200	202	983
Less：						
Effective tax rate outside (-1,1)	10	4	6	6	9	35
Income less than zero	10	13	16	18	20	77
Missing observations in necessary variables	3	13	5	3	5	29
Total	159	168	174	173	168	842

Table 3 Sample Distribution

Panel A：Sample Distribution by Year

Fiscal Year	Sample Observation	Percentage of Total Observation (%)
2010	159	18.88
2011	168	19.95
2012	174	20.67
2013	173	20.55
2014	168	19.95
Total	842	100

Panel B：Sample Distribution by Industry

SIC: Two-digits	Description	Observation	Percentage of Total Observation (%)
15-17	Construction	62	7.36
20-39	Manufacturing	325	38.60
40-49	Transportation & Public Utilities	73	8.67
50-51	Wholesale Trade	43	5.11
52-59	Retail Trade	146	17.34
70-89	Services	193	22.92
Total		842	100

Table 4 Distributions of Tax Disclosures and Tax Avoidance by Year and Categories

Panel A：Tax Disclosures (N=120)

Disclosure Item	All (N=120) Mean (Median) Min-Max	2010 (N=17) Mean (Median) Min-Max	2011 (N=19) Mean (Median) Min-Max	2012(N=23) Mean (Median) Min-Max	2013 (N=26) Mean (Median) Min-Max	2014 (N=35) Mean (Median) Min-Max
Hard Information (Maximum Score: 15)	**2.18(1.00) 0-13**	**1.65(1.00) 0-7**	**1.95(1.00) 0-7**	**2.35(1.00) 0-12**	**2.38(1.50) 0-11**	**2.31(1.00) 0-13**
(A1) Governance Structure and Management Systems (Maximum Score: 3)	0.17(0.00) 0-2	0.12(0.00) 0-1	0.11(0.00) 0-1	0.13(0.00) 0-2	0.19(0.00) 0-2	0.23(0.00) 0-2
(A2) Credibility of Tax Compliance (Maximum Score: 7)	0.93(0.00) 0-6	0.59(0.00) 0-3	0.68(0.00) 0-3	1.00(0.00) 0-5	1.12(0.50) 0-4	1.06(1.00) 0-6
(A3-1) Amounts or Distribution of Tax Spending (Maximum Score: 5)	1.08(1.00) 0-5	0.94(1.00) 0-3	1.16(1.00) 0-3	1.22(1.00) 0-5	1.08(1.00) 0-5	1.03(1.00) 0-5
Soft Information (Maximum Score: 11)	**2.97(2.00) 0-10**	**1.71(1.00) 0-5**	**2.32(1.00) 0-7**	**3.09(2.00) 1-10**	**3.31(2.00) 1-9**	**3.60(3.00) 1-9**
(A3-2) General Statement of Tax Spending (Maximum Score: 2)	0.83(1.00) 0-2	0.53(1.00) 0-1	0.68(1.00) 0-1	0.87(1.00) 0-2	0.96(1.00) 0-2	0.91(1.00) 0-2
(A4) Tax Strategy (Maximum Score: 7)	1.33(0.00) 0-7	0.35(0.00) 0-3	0.95(0.00) 0-5	1.43(0.00) 0-7	1.58(0.00) 0-6	1.77(1.00) 0-6
(A5) Tax Profile (Maximum Score: 2)	0.82(1.00) 0-3	0.82(1.00) 0-2	0.68(1.00) 0-2	0.78(1.00) 0-2	0.77(1.00) 0-2	0.94(1.00) 0-3

(Continued)

Table 4 (Continued)

Panel A：Tax Disclosures (N=120)

Disclosure Item	All (N=120) Mean (Median) Min-Max	2010 (N=17) Mean (Median) Min-Max	2011 (N=19) Mean (Median) Min-Max	2012(N=23) Mean (Median) Min-Max	2013 (N=26) Mean (Median) Min-Max	2014 (N=35) Mean (Median) Min-Max
Total Disclosure (Maximum Score: 26)	**5.15(3.00) 1-22**	**3.35(2.00) 1-9**	**4.26(2.00) 1-12**	**5.43(3.00) 1-21**	**5.69(4.00) 1-20**	**5.91(5.00) 1-22**

Panel B：Tax Avoidance (N=842)

Effective Tax Rate	All (n=842) Mean (Median) Min-Max	2010 (n=159) Mean (Median) Min-Max	2011 (n=168) Mean (Median) Min-Max	2012 (n=174) Mean (Median) Min-Max	2013 (n=173) Mean (Median) Min-Max	2014 (n=168) Mean (Median) Min-Max
ETR(%)	22.54(23.38) -100.00－100.00	24.95(26.09) -55.97－93.29	22.57(23.77) -72.00－100.00	22.63(24.03) -53.06－79.32	22.67(22.57) -41.43－79.72	19.99(21.68) -100.00－90.48

This table presents descriptive statistics on tax disclosure scores and tax avoidance measure by fiscal year. Descriptive statistics present means (medians) and ranges (min–max) below. Panel A presents disclosures scores for firms that chose to provide discretionary disclosures (i.e., "disclosing" firms) on their tax performance (N = 120 firm-years). The scale for each category of disclosure items is presented in brackets. Panel B presents tax avoidance measure, effective tax rate (*ETR*) for the full sample (N = 842 firm-years). *ETR*(%) is the percentage of the amount of tax expenses divided by pretax income in fiscal year *t*.

Table 5 Descriptive Statistics and Pearson Correlation

Panel A：Descriptive Statistics

Variable	N	Mean	Min	Q1	Median	Q75	Max	Std. Dev.
Dependent Variable								
TSCOR	842	0.703	0	0	0	0	14	2.309
SSCOR	842	0.422	0	0	0	0	9	1.431
HSCOR	842	0.285	0	0	0	0	6	1.012
Variable of Interest								
ETR	842	0.227	-0.285	0.179	0.234	0.283	0.750	0.137
Control-Continuous Variable								
TOBINQ	842	1.791	0.475	1.121	1.505	2.183	5.638	0.978
VOLAT	842	0.118	0.001	0.003	0.004	0.006	0.834	0.055
ROA	842	0.083	0.001	0.042	0.069	0.111	0.290	0.059
LEV	842	0.483	0.111	0.363	0.479	0.593	0.981	0.178
SIZE	842	7.465	4.676	6.547	7.209	8.208	11.305	1.369
CSR	842	0.651	0.132	.488	0.702	0.851	0.944	0.226
Control-Dummy Variable								
TAXREF	842	0.044	0	0	0	0	1	0.205

Panel B：Pearson Correlation

Variable	*TSCOR*	*SSCOR*	*HSCOR*	*ETR*	*TOBINQ*	*VOLAT*	*ROA*	*LEV*	*SIZE*	*CSR*	*TAXREF*
TSCOR	1.000										
SSCOR	0.966***	1.000									
HSCOR	0.941***	0.825***	1.000								
ETR	-0.008	-0.039	0.036	1.000							
TOBINQ	-0.037	-0.016	-0.058*	0.087**	1.000						
VOLAT	0.106***	0.115***	0.088**	0.001	0.315***	1.000					
ROA	-0.026	-0.016	-0.035	-0.057*	0.705***	0.291***	1.000				
LEV	0.016	0.015	0.015	0.039	-0.035	-0.124***	-0.164***	1.000			
SIZE	0.458***	0.411***	0.471***	0.028	0.065*	0.286***	0.098***	-0.013	1.000		
CSR	0.259***	0.246***	0.248***	0.025	-0.200***	0.051	-0.118***	0.111***	0.346***	1.000	
TAXREF	-0.018	-0.007	-0.032	-0.584***	-0.082**	-0.055	-0.082**	-0.031	-0.094***	-0.078**	1.000

This table presents descriptive and Pearson correlation statistics for variables used in the tests. Statistics are presented for the full sample of 842 firm-years from 2010 to 2014. All continuous variables are winsorized at the 1% and 99% level to mitigate the influence of outliers. ***, **, * represent significance levels (two-tailed) at 1%, 5% and 10%, respectively.

Variable：	Definition
TSCORi,t =	A score of whole voluntary tax disclosures in the firm i's CSR report for year t；
SSCORi,t =	A score of voluntary tax soft disclosures in the firm i's CSR report for year t；
HSCORi,t =	A score of voluntary tax hard disclosures in the firm i's CSR report for year t；
ETRi,t =	Effective tax rate, measured as the amount of tax expenses divided by pretax income in fiscal year t, ranging from -1 to 1；
TOBINQi,t =	Tobin's Q, measured as the sum of market value of equity, book value of preferred stock, and book value of debt divided by the book value of total assets；
VOLATi,t =	Volatility of stock price, measured as standard deviation of the monthly stock return for fiscal year t；
ROAi,t =	Return on assets, measured by earnings before extraordinary items in fiscal year t and tax divided by total assets at the beginning of fiscal year t；
LEVi,t =	Leverage, measured as a ratio of total liabilities to total assets at the end of fiscal year t ；

$SIZEi,t$ =	Size, natural log of total equity at the end of fiscal year t ；
$CSRi,t$ =	A score of corporate social responsibility: It is measured by the average of environment and social performance scores in fiscal year t from ASSET4 ；
$TAXREFi,t$ =	1 if firm i has tax benefits or tax rebates; otherwise 0.

Table 6 Main Test

Association of Tax Avoidance (ETR) on Tax Disclosures

Dependent Variable	**TSCOR**	**SSCOR**	**HSCOR**
Intercept	-38.72***	-24.41***	-21.43***
	(-6.73)	(-6.52)	(-6.70)
***ETR* (−)**	**-12.50****	**-9.059****	**-4.527**
	(-2.75)	**(-2.98)**	**(-1.78)**
TOBINQ (±)	-0.657	-0.481	-0.0872
	(-0.77)	(-0.84)	(-0.15)
VOLAT (+)	4.874	3.342	2.766
	(0.46)	(0.47)	(0.62)
ROA (+)	3.460	1.786	-11.96
	(0.25)	(0.18)	(-1.49)
LEV (+)	3.542	1.613	3.165
	(1.10)	(0.73)	(1.70)
SIZE (+)	2.983***	1.871***	1.731***
	(4.92)	(4.77)	(5.05)
CSR (+)	15.82***	10.22***	7.410***
	(5.54)	(5.44)	(3.98)
TAXREF (?)	-2.889	-2.228	-0.319
	(-1.23)	(-1.44)	(-0.26)
Industry Effects	Yes	Yes	Yes
Year-Fixed Effects	Yes	Yes	Yes
N	842	842	842
Pseudo R^2	27.33%	28.81%	37.12%

Dependent variables are disclosure scores as indicated by the columns. Main Variable is GAAP effective tax rate (*ETR*), measured as tax expenses divided by pretax income. The expected signs for the independent variables are presented in parenthesis next to the variable. Coefficients are estimated by maximum likelihood of Tobit regressions, and standard errors are clustered by at the firm-level. The significance levels are based on t-statistics (presented in parentheses). All variables are defined in Appendix. ***, **, * represent significance levels (two-tailed) at 1%, 5% and 10%, respectively.

Table 7 Additional Test

Panel A. Impact of Tax Avoidance (ETR) on Tax Disclosures

Dependent Variable	**TSCOR**	**SSCOR**	**HSCOR**
Intercept	-41.99***	-25.58***	-22.67***
	(-6.53)	(-5.07)	(-6.42)
***DID* (+)**	**7.633****	**4.932****	**4.308****
	(2.83)	**(2.63)**	**(2.93)**
Tax_Avoidance (+)	-1.406	-0.898	-1.074
	(-1.44)	(-1.57)	(-1.56)
*Post*2013 (+)	9.002**	6.075**	4.327**
	(3.18)	(2.91)	(3.08)
ETR (−)	-4.707	-3.571	-3.841
	(-0.90)	(-1.05)	(-1.12)
TOBINQ (±)	-3.488**	-2.236**	-1.657*
	(-2.95)	(-2.81)	(-2.26)
VOLAT (+)	11.43	8.607	5.999
	(0.94)	(1.10)	(1.03)
ROA (+)	26.69	17.23	2.513
	(1.73)	(1.50)	(0.29)
LEV (+)	10.93**	6.350*	4.321
	(3.13)	(2.49)	(1.86)
SIZE (+)	1.941***	1.140***	1.217***
	(4.49)	(4.09)	(4.46)
CSR (+)	16.61***	10.32***	8.544***
	(5.16)	(4.05)	(5.41)
TAXREF (?)	-2.637	-1.933	-1.370
	(-0.87)	(-0.97)	(-0.97)
Industry Effects	Yes	Yes	Yes
N	386	386	386
Pseudo R^2	16.56%	22.59%	17.64%

Dependent variables are disclosure scores as indicated by the columns. Main Variable is *DID*, *Tax_Avoidance* multiplies by *Post*2013. *Tax_Avoidance* is 1 for the treatment group of tax-avoiding firms, and 0 for the propensity score matched control firms. *Post*2013 is one if year is 2013 and 2014, and 0 otherwise. The expected signs for the independent variables are presented in parenthesis next to the variable. Coefficients are estimated by maximum likelihood of Tobit regressions, and standard errors are clustered by at the firm-level. The significance levels are based on t-statistics (presented in parentheses). All other variables are defined in Appendix. ***, **, * represent significance levels (two-tailed) at 1%, 5% and 10%, respectively.

Table 7 Additional Test (Continued)

Panel B. Impact of Cash Tax Avoidance on (Cash ETR) on Tax Disclosures

Dependent Variable	***TSCOR***	***SSCOR***	***HSCOR***
Intercept	-42.63***	-27.02***	-24.63***
	(-6.78)	(-6.69)	(-5.95)
***Cash ETR*(−)**	-8.108*	-4.882*	-5.412**
	(-2.43)	(-2.30)	(-2.91)
TOBINQ(±)	-0.896	-0.617	-0.447
	(-1.00)	(-1.04)	(-0.66)
VOLAT(+)	1.647	1.605	-11.21
	(0.13)	(0.17)	(-1.72)
ROA(+)	1.534	1.805	-0.571
	(0.15)	(0.26)	(-0.12)
LEV(+)	4.129	2.019	3.907
	(1.20)	(0.87)	(1.60)
SIZE(+)	3.300***	2.036***	2.007***
	(5.11)	(5.01)	(5.01)
CSR(+)	0.0773***	0.0500***	0.0336***
	(4.91)	(4.81)	(3.62)
TAXREF(?)	1.533	1.037	1.153
	(0.62)	(0.63)	(1.07)
Industry Effects	Yes	Yes	Yes
Year-Fixed Effects	Yes	Yes	Yes
N	764	764	764
Adj. R^2	27.77%	29.12%	38.03%

Dependent variables are disclosure scores as indicated by the columns. Main Variable is cash effective tax rate, measured as cash tax paid divided by pretax income. The expected signs for the independent variables are presented in parenthesis next to the variable. Coefficients are estimated by maximum likelihood of Tobit regressions, and standard errors are clustered by at the firm-level. The significance levels are based on t-statistics (presented in parentheses). All other variables are defined in Appendix. ***, **, * represent significance levels (two-tailed) at 1%, 5% and 10%, respectively.

Table 7 Additional Test (Continued)

Panel C. Logit Regression

Dependent Variable	***DISC***	***DISC_S***	***DISC_H***
Intercept	-14.3766***	-13.9269***	-10.3270***
	(-5.77)	(-5.81)	(-7.33)
***Cash ETR*(−)**	-5.3644**	-5.2606**	-2.5896
	(-2.36)	(-2.29)	(-1.10)
TOBINQ(±)	-0.0907	-0.1249	0.0437
	(-0.26)	(-0.36)	(0.10)
VOLAT(+)	0.7426	0.7403	1.9872
	(0.13)	(0.14)	(0.54)
ROA(+)	3.7252	2.6545	-6.7358
	(0.58)	(0.39)	(-1.06)
LEV(+)	1.7613	1.3650	-0.0052
	(1.33)	(1.02)	(-0.00)
SIZE(+)	1.1051***	1.0995***	0.7456***
	(4.08)	(4.09)	(4.56)
CSR(+)	0.0315***	0.0300***	0.0235***
	(5.03)	(4.79)	(3.74)
TAXREF(?)	-1.7720*	-1.8036*	-0.5408
	(-1.73)	(-1.77)	(-0.56)
Industry Effects	Yes	Yes	Yes
Year-Fixed Effects	Yes	Yes	Yes
N	724	724	724
Pseudo R^2	42.70%	42.40%	35.90%

Dependent variables are disclosure scores as indicated by the columns. Main Variable is cash effective tax rate, measured as cash tax paid divided by pretax income. The expected signs for the independent variables are presented in parenthesis next to the variable. Coefficients are estimated by maximum likelihood of Tobit regressions, and standard errors are clustered by at the firm-level. The significance levels are based on t-statistics (presented in parentheses). All other variables are defined in Appendix. ***, **, * represent significance levels (two-tailed) at 1%, 5% and 10%, respectively.

Table 7 Additional Test (Continued)

Panel D. Impact of Better CSR Performers' Tax Avoidance on Tax Disclosures

Dependent Variable	**TSCOR**	**SSCOR**	**HSCOR**
Intercept	-30.206***	-18.723***	-17.543***
	(-8.22)	(-7.81)	(-7.74)
***ETR* (−)**	**-26.951*** **	**-18.516*** **	**-11.158*** **
	(-3.90)	**(-4.06)**	**(-3.17)**
HIGHCSR(+)	0.383	0.275	-0.511
	(0.25)	(0.28)	(-0.60)
***ETR* × *HIGHCSR*(?)**	**19.119*** **	**12.461*** **	**9.482*** **
	(2.75)	**(2.72)**	**(2.61)**
TOBINQ(±)	-0.886	-0.612	-0.281
	(-1.22)	(-1.29)	(-0.56)
VOLAT(+)	0.295	0.195	0.084
	(0.50)	(0.50)	(0.24)
ROA(+)	9.954	5.986	-9.395
	(1.01)	(0.92)	(-1.35)
LEV(+)	6.921**	3.773**	4.977***
	(2.58)	(2.14)	(2.92)
SIZE(+)	3.281***	2.041***	1.938***
	(8.42)	(7.99)	(7.86)
TAXREF(?)	-4.252*	-3.099**	-1.084
	(-1.82)	(-2.02)	(-0.84)
Industry Effects	Yes	Yes	Yes
Year-Fixed Effects	Yes	Yes	Yes
N	842	842	842
Adj. R^2	26.66%	28.22%	36.59%

Dependent variables are disclosure scores as indicated by the columns. Main Variable is the mediator variable of high CSR performers' effective tax rate, measured as total tax expenses divided by pretax income multiplying the dummy variable *HIGHCSR*. *HIGHCSR* is equal to one if firm *i*'s CSR performance is higher than its industry average in year *t* and zero otherwise. The expected signs for the independent variables are presented in parenthesis next to the variable. Coefficients are estimated by maximum likelihood of Tobit regressions, and standard errors are clustered by at the firm-level. The significance levels are based on t-statistics (presented in parentheses). All other variables are defined in Appendix. ***, **, * represent significance levels (two-tailed) at 1%, 5% and 10%, respectively.

Footnotes

[1] For the UK firms with taxable income more than 15 million dollars, corporate tax rates are 28%, 26%, 24%, 23%, and 21% respectively (Ernst & Young 2010, 2011, 2012, 2013, 2014).

[2] SABMiller's CSR reports indicate that SABMiller issued its standalone tax report in 2013, Our Approach to Tax 2013. Its tax report from sustainability section of its original website states that it has the Group Tax Committee that set tax policies and managed tax risks. Now while SABMiller was merged by ABInbev in 2016, the tax reports can still be found at http://www.ab-inbev.com/content/dam/universaltemplate/ab-inbev/investors/sabmiller/reports/our-approach-to-tax-reports/our-approach-to-tax-report-2013.pdf.

[3] Rio Tinto in its sustainability report in 2014 states that it received Building Public Trust award for the transparency of the tax reporting (http://www.riotinto.com/sd2014/pdfs/00_sd2014_full.pdf), and its tax report in 2014 specifies that it agreed with the primary aims of BEPS (http://www.riotinto.com/documents/RT_taxes_paid_in_2014.pdf).

[4] Different from category A4, A1-2 or A1-3 are classified as hard information disclosures because they provide specific information about the existence of board committees, the groups, the department, or management positions responsible for the tax strategy, tax compliance, or tax risk management process. On the contrary, items in A4 are classified as soft information disclosures because they contain only general statements or claims without details or substantiation.

[5] The value of the dependent variable is left censored at zero, so I employ Tobit regression, which provides more accurate estimates than Ordinary Least Squares (Tobin 1958; Lanis and Richardson 2012).

[6] I also use cash ETR in the additional tests. The results are qualitatively and quantitatively similar.

[7] Extractive Industries Transparency Initiative (EITI). 2015. EITI Countries. Available online at: https://eiti.org/eiti.